

REMARKS

The present Response is submitted in reply to the Official Action of June 17, 2005 and the Applicant respectfully requests a one month extension of the period in which to respond.

Claims 1-46 are presently pending in the Application, with claims 23-40 and 41-45 being withdrawn from consideration by election under a restriction requirement, so that claims 1-22 and 41-45 remain in consideration.

The Examiner objects to claim 41 because of an informality contained therein and rejects claims 1-22 and 41-45 under 35 U.S.C. § 102 and 35 U.S.C. § 03 over the prior art cited by the Examiner.

In response, the Applicant amends claim 41 herein above to address the identified informality. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the objection to claim 41.

Therefore considering the rejections of the claims under 35 U.S.C. 102 and 103 over the cited prior art, the Examiner rejects claims 1, 3, 7, 8, 10-12, 16 and 18, under 35 U.S.C. § 102(b), as being anticipated by Daniel et al. '570. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

First considering the present invention as recited in independent claims 1 and 16 as amended herein above, the present invention is directed to an indicia that can be marked on an object and that represents selected information, such as an identifying code. Claim 1 is directed to the composition of the indicia itself as an indicia that can be marked on an object, and claim 16 is directed to the method for generating such an indicia.

It will be noted that the Applicant amends claims 1 and 16 herein above after consideration of the cited prior art, which is discussed below, to more clearly and explicitly recite the aspects by which the present invention is distinguished over the cited prior art.

It will also be noted that claims 3, 7, 8, and 10-12 depend from claim 1, and thereby incorporate all recitations and limitations of claim 1 by dependency, and that, in this regard, the Applicant hereby amends claim 3 to clarify the meaning of claim 1 and also amends claim 7 by making claim 7 directly dependent from claim 1 to further emphasize the characteristics of the present invention as recited in claim 1. In addition, it will be noted that claims 17 and 18 are likewise dependent from method claim 16, and accordingly inherit all of the recitations and limitations of claim 16 by dependency therefrom.

It should also be noted that the Applicant adds new claims 47 and 48 that are respectively dependent from claims 1 and 16 and these claims recite subject matter that was canceled from claim 16 in the above discussed clarifying amendments to claims 1 and 16.

Therefore, considering the recitations of claims 1 and 16 as amended herein above, an indicia of the present invention comprises a multi-dimensional array of encoded marks wherein the multi-dimensional array of encoded marks includes or is formed of an encoded pattern of the encoded marks determined by a holographic algorithmic transformation of the encoded marks. As recited in claim 1, the encoded marks are determined by spectral encoding variables representing the selected information, and each spectral variable is spectrally distinguishable from other of the spectral variables.

Stated more briefly, the selected information is represented by means of encoded marks composed of the spectral encoding variables that represent the selected information so that the selected information, as represented by the encoded marks, is transformed directly into a hologram by means of a direct holographic algorithmic transformation of the encoded marks. The result is thereby a single, unitary entity, that is, the hologram, that contains and in fact is comprised of the selected information.

As recited in claim 7, which is now dependent from claim 1, any of a number of holographic algorithmic transformations may be employed to transform the encoded marks, that is, the selected information, into a corresponding hologram, such as a binary phase Fourier transform, a DOE, CGH, Lohmann, Lee, Fourier, Fraunhofer or Fresnel transform, or a kinoform type of hologram encoding algorithm. Any of the transformation methods may be employed so long as the transformation operates upon the selected information represented by the encoded marks, no matter how the selected information is represented by or encoded as the encoded marks, so long as the encoded marks are transformed by the algorithm into a single, unitary holographic entity. In addition, and for example as recited in new claims 47 and 48, the selected information that is represented by or encoded into the encoded marks may include any combination of information, such as an artwork that is conjoined with the selected information as represented by encoded marks, so that the artwork effectively becomes a part of the selected information and provides an additional identifying or encoding element.

It will also be seen by those of ordinary skill in the arts that because the holographic algorithmic transformation is an imaging transformation process, the specific form of the selected information is immaterial so long as the selected information can be represented in

some form as an image. As such, the selected information may take the form of an encoded linear or circular bar code, for example, or even alphanumeric data, and so on, as recited in claims 3, 17 and 18.

It will also be seen that, as recited in claims 8, 9 and 10, all of which are dependent from claim 1 and thus incorporate all of the recitations and limitations of claim 1, that the resulting indicia of the present invention may be formed or marked upon a variety of surfaces by any of a number of processes. For example, as recited in claim 8, the indicia may be formed on a surface of an object by deposition of a material on the surface, such as by a printing process. As recited in claim 11, this method may take the form of printing onto the surface one or more spectrally distinguishable layers forming the hologram so long as the layers together form the hologram, that is, so long as the totality of the layers form a single encoded information bearing entity. As recited in claim 10, the indicia may be marked on a surface by removal of selected areas of surface material, such as by laser machining or etching, or, as recited in claim 9, by imprinting the indicia in the surface by the physical impact or pressing of a marking indicia on the surface to form an inverse image of the indicia.

Therefore, considering the teachings of Daniel et al. '570 and comparing the teachings of Daniel et al. '570 with the recitations of claims 1, 3, 7, 8, 10-12, 16 and 18, Daniel et al. '570 describes a multi-layer assembly and method for marking articles. According to Daniel et al. '570, the assembly is a multi-layer optical complex consisting of an identifying portion, such as a bar code or photograph, placed on the substrate and an authenticating portion superimposed on the identifying layer wherein the authenticating portion consists of a diffracting optical mark. The identifying layer and the authenticating layer are superimposed so that the layers cannot be separated without destroying the authenticating layer, so that the identifying layer carries the information identifying the article that the complex is mounted upon while the diffracting authenticating layer indicates whether the identifying layer has been altered.

In an alternate embodiment, the substrate is a document and the identification layer is designed to be read by illumination of a predetermined wavelength. The identification layer is then covered by a layer of lacquer, which apparently replaces the authenticating layer of the first embodiment described above, wherein the lacquer layer is opaque except in a wavelength "window" containing the wavelength in which the identification layer can be read. The identification layer can therefore be read only when the assembly is illuminated by the

appropriate wavelength, which passes through the wavelength “window” in the lacquer layer and reflectively illuminates the identification window.

It is, therefore, apparent that there are fundamental differences between the present invention, as recited in claims 1 and 16, and the teachings and suggestions of Daniel et al. '570. For example, the method and apparatus of the present invention transforms or encodes the selected information directly into a hologram. That is, the hologram is itself comprises the transformed selected information. In addition, the hologram that is comprised of the transformed selected information as represented by the spectrally encoded marks is a single, unitary entity that is complete in itself and that, for example, can be printed or embossed onto a surface as an entity and in a single operation.

In complete contrast from the present invention as recited in claims 1 and 16, the multi-layer optical assembly proposed by Daniel et al. '570 does not comprise a single, unitary entity containing the encoded identification information, but is instead a multi-layer construct in which each layer performs a different function. That is, and as described in the first embodiment of the Daniel et al. '570 optical assembly, the identification layer contains only the identification information, which is not a hologram and which is not encoded or transformed in any way, much less by a holographic transformation algorithm. The authentication layer, in turn, which may be a hologram image, contains no information at all and performs no encoding functions but merely indicates whether the identification layer has been modified in any way.

In the second embodiment of the Daniel et al. '570 optical assembly, the identification layer again contains only the identification information, which again is not a hologram and which is not encoded or transformed in any way, much less by a holographic transformation algorithm. The lacquer layer, in turn, contains no information at all and performs no encoding functions and does not comprise any form of hologram or other optical image, but instead functions merely as a bandwidth limited window to allow the identification layer to be read only by certain wavelengths of illumination. The lacquer layer thereby effectively only prevents read access to the identification except under specific conditions of illumination.

Further with regard to the fundamental distinctions between the construction of the Daniel et al. '570 multi-layer assembly and the hologrammic entity of the present invention, it must be noted that, according to claims 13-15, the resulting information containing hologram is to be used in a setting, such as on an impact surface of a firearm, where the hologram entity

will be subject to high pressures and other potentially destructive forces and effects. It will be apparent to those of ordinary skill in the relevant arts that while an information containing hologram of the present invention, that is, created as a single, integrated entity, will resist such destructive forces much better than will a multi-layer construction, which would be completely unsuitable for such applications.

It is, therefore, the belief and position of the Applicant that Daniel et al. '570 does not teach or even suggest the invention as recited in claims 1 and 16 to those of ordinary skill in the arts under the requirements and provisions of either 35 U.S.C. § 102 or 35 U.S.C. § 103. In particular, Daniel et al. '570 does not teach or suggest representing selected information by means of encoded marks composed of the spectral encoding variables that represent the selected information so that the selected information, as represented by the encoded marks, is transformed directly into a hologram by means of a direct holographic algorithmic transformation of the encoded marks to comprise a single, unitary entity, that is, the hologram, that contains and, in fact, is comprised of the selected information.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 1 and 16 under either or both of 35 U.S.C. § 102 or 35 U.S.C. § 103 over Daniel et al. '570, and the allowance of claims 1 and 16 as amended herein above.

As regards claims 3, 7, 8, 10-12, 16 and 18, as discussed above claims 3, 7, 8, 10-12, 17 and 18 each depend from and thereby incorporate the recitations and limitations of one of claims 1 and 16 and are thereby distinguished over and from the teachings and suggestions of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 102 and § 103 for at least the same reasons that claims 1 and 16 are patentably distinguished over and from Daniel et al. '570.

In addition, Daniel et al. '570 does not teach or suggest any form of holographic transform encoding of any form of information, such as barcodes as recited in claims 3, 17 and 18, and, for the same reasons, does not teach or suggest any of the forms of holographic algorithmic transforms recited in claim 7. Also, Daniel et al. '570 suggests only the construction of an assembly consisting of two separate non-integrated layers, that is, an information layer and an authentication or lacquer wavelength window layer, and thereby does not teach or suggest the construction of a single, unitary entity comprised of holographically encoded information as recited in claims 8, 9, 10, 11 and 12.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 3, 7, 8, 10-12 and 18 over Daniel et al. '570 under either or both of 35 U.S.C. § 102 and § 103, and allow claims 3, 7, 8, 10-12 and 18 as presented herein above.

Continuing with the rejections of the claims from claims 1-22, the Examiner rejects claims 2 and 17 under 35 U.S.C. § 103(a) over Daniel et al. '570 in view of Komiya et al. '351. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

First, claim 2 depends from claim 1 and claim 17 depends from claim 17 so that claims 2 and 17 incorporate all recitations and limitations of claims 1 and 16, respectively. For that reason, claims 2 and 17 are fully and patentably distinguished over and from the teachings of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 for the reasons discussed above.

Notwithstanding this, turning now to the teachings of Komiya et al. '351, it must first be noted that while the Examiner cites this reference as Koymiya et al. '351 Publication No. US 2004/0158351, the publication number appears to be in error. The closest publication number identifying Komiya et al. as an inventor is Publication No. US 2004/0150351 to Komiya et al. for an EMISSIVE DISPLAY DEVICE AND ELECTROLUMINESCENCE DISPLAY DEVICE WITH UNIFORM LUMINANCE. Publication No. US 2004/0158351, however, is titled a METHOD FOR AUTOMATED PACKAGE PICK-UP AND DELIVERY by Rivalto '351. A comparison of the Examiner's comments to the two references, that is, Koyima et al. '351 and Rivalto '351, indicates that the Examiner most probably is referring to Rivalto '351 and this rejection and the following comments are based upon this conclusion.

Therefore considering the Rivalto '351 reference, the Examiner cites Rivalto '351 as teaching that "Authentication" can also be provided by using selected digits from an assigned package tracking number as a unique pin number. Still further, authentication can be provided by presenting a receipt, which may include a conventional, two dimensional, three dimensional or holographic bar code, for example, to a reader or camera.

First, the entire descriptive content of Rivalto '351, that has any pertinence at all to the present invention, is the single phrase "or holographic bar code". There is no description at all as to what is meant by this term or how such a "holographic bar code" would be constructed, or what it would contain or how it would be created. For example, the term is used in the context of authentication of a receipt and very probably could mean only that the term is used

in the sense of the authentication hologram layer described in Daniel et al. '570. That is, the term very probably refers to a hologram that does not contain any actual encoded information, as in the present invention, but is instead merely an indication that the receipt is not counterfeit or has not been altered. It is also noted that the term is used in the context of an afterthought, and as the last and least preferred listed alternative.

It is, therefore, the belief and position of the Applicant that this reference to a "holographic bar code" in Rivalto '351 contains so little information and is so vague that it does not comprise any teaching or suggestion relevant to the present invention.

In addition, it is noted that the publication date of Rivalto '351 is August 12, 2004 and the filing date is February 10, 2004. By comparison, the filing date of the present Application is July 18, 2003 and the present Application claims benefit of the May 1, 2003 and the February 21, 2003 filing dates of its parent Applications, so that it is respectfully submitted that Rivalto '351 is not a valid 35 U.S.C. § 102 or 35 U.S.C. § 103 reference with respect to the present Application.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the rejections of claims 2 and 17, under either or both of 35 U.S.C. § 102 or 35 U.S.C. § 103, in view of Rivalto '351.

Considering Rivalto '351 further, however, but solely for purposes of discussion, it is further the Applicant's belief and position that, for the above discussed reasons, neither Daniel et al. '570 nor Rivalto '351 (Komiya et al. '351) nor the combination of Daniel et al. '570 in view of Rivalto '351 (Komiya et al. '351) teaches or suggests the present invention as recited in claim 1 or in the combination of the recitations of claim 1 as incorporated into the recitations of claims 2 and 17 under the requirements and provisions of 35 U.S.C. § 102 or 35 U.S.C. § 103. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejections of claims 2 and 17 under either or both of 35 U.S.C. § 102 or 35 U.S.C. § 103 over Daniel et al. '570 in view of Rivalto '351 (Komiya et al. '351).

Next, the Examiner rejects claims 4, 5, 19 and 20 under 35 U.S.C. § 103(a) over Daniel et al. '570 in combination with Rivalto '351 and further in view of Caulfield '039. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

It should first be noted that claims 4 and 5 indirectly depend from claim 1 and that claims 19 and 20 indirectly depend from claim 16, so that claims 4 and 5 incorporate all of the

recitations and limitations of claim 1 and intervening claim 2 while claims 19 and 20 incorporate all recitations of claim 16 and intervening claim 17.

As discussed above claims 1 and 16 and claims 2 and 17 are patentably distinguished over and from the teachings and suggestions of Daniel et al. '570 in combination with Rivalto '351 under the requirements and provisions of both 35 U.S.C. § 103 and 35 U.S.C. § 102. Claims 4, 5 19 and 20 are thereby patentably distinguished over and from the teachings and suggestions of Daniel et al. '570 in combination with Rivalto '351 under the requirements and provisions of both 35 U.S.C. § 103 and 35 U.S.C. § 102 for the reasons discussed above with regard to claims 1, 2, 16 and 17.

Notwithstanding this, now considering the subject matter of claims 4, 5, 19 and 20, claims 4, 5, 19 and 20 depend from claims 1 and 16 and recite known methods for constructing holograms, as described in the specification of the present Application. The Applicant thereby does not claim the present invention as comprising specific methods for creating holograms, the present invention instead being directed to the contents of and uses of holographic arrays of encoded marks as recited in claims 1 and 16. As such, the recitations of claims 4, 5, 19 and 20 do not in themselves define the present invention but instead operate to add further recitations and limitations to the present invention as recited in claims 1 and 16.

Therefore considering the teachings of Caulfield '039 in light of the present invention as recited in claims 1 and 16, Caulfield '039 describes certain methods for generating holograms, those methods being generally similar to those described in the specification of the present Application. Caulfield '039, however, like Daniel et al. '570 and Rivalto '351, does not describe or suggest the present invention as recited in claims 1 and 16.

It is, therefore, the belief and position of the Applicant that the present invention as recited in claims 4, 5, 19 and 20 is fully and patentably distinguished over and from the teachings and suggestions of Caulfield '039 and of Daniel et al. '570 in combination with Rivalto '351 and further in view of Caulfield '039 under the requirements and provisions of 35 U.S.C. § 103 and § 102 for the reasons discussed above.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all rejections of claims 4, 5, 19 and 20 over Daniel et al. '570 in combination with Rivalto '351 and further in view of Caulfield '039 under 35 U.S.C. § 103, and allow claims 4, 5, 19 and 20 as presented herein above.

Next, the Examiner rejects claims 3, 6, 18 and 21 under 35 U.S.C. § 103(a), as being unpatentable over Daniel et al. '570 in view of Lemelson et al. '980. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Again, claims 3 and 6 and claims 18 and 21 respectively depend from independent claims 1 and 16 and thereby incorporate all recitations and limitations of claims 1 and 16 by dependency therefrom. For this reason, claims 3, 6, 18 and 21 are patentably distinguished over and from the teachings and suggestions of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 103 and § 102 for the reasons discussed above with regard to claims 1 and 16 and Daniel et al. '570.

Notwithstanding this, now considering the specific subject matter of claims 3, 6, 18 and 21, claims 3, 6, 18 and 21 recite various forms of information that may be encoded into a hologram having the form of a multi-dimensional array of encoded marks determined by spectral encoding variables.

Lemelson et al. '980 describes a method and apparatus for encoding and decoding linear and circular bar codes wherein primary and secondary information is respectively encoded along a primary axis and an orthogonal secondary axis of the barcode. Lemelson et al. '980 thereby describes specific forms of barcodes, but, like Daniel et al. '570, does not teach or even suggest the encoding of any form of barcode or other information as a hologram having the form of a multi-dimensional array of encoded marks determined by spectral encoding variables.

It is, therefore, the Applicant's belief and position that neither Daniel et al. '570 nor Lemelson et al. '980 teaches or even suggests the encoding of any form of barcode or other information as a hologram having the form of a multi-dimensional array of encoded marks determined by spectral encoding variables, as incorporated into claims 1 and 16 by claims 3, 6, 18 and 21. It is, therefore, the Applicant's belief and position that the combination of Daniel et al. '570 in view of Lemelson et al. '980 does not and cannot teach or suggest the present invention as recited in claims 1 and 16 and further limited by claims 3, 6, 18 and 21 to those of ordinary skill in the arts, under the requirements and provisions of 35 U.S.C. § 103 or 35 U.S.C. § 102.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all rejections of claims 3, 6, 18 and 21 over Daniel et al. '570 in view of

Lemelson et al. '980 under 35 U.S.C. § 103, and allow claims 3, 6, 18 and 21 as presented herein above.

Next, the Examiner rejects claims 9 and 13-15 under 35 U.S.C. § 103(a) over Daniel et al. '570 in view of Woo et al. '639. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Again, claims 9 and 13-15 all directly or indirectly depend from independent claim 1 and thereby incorporate all recitations and limitations of claim 1 by dependency therefrom. For this reason, claims 9 and 13-15 are patentably distinguished over and from the teachings and suggestions of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 103 and § 102 for the reasons discussed above with regard to claims 1 and 16 and Daniel et al. '570.

Now considering the specific subject matter of claims 9 and 13-15, claims 9 and 13-15 recite that a hologram of the present invention having the form of a multi-dimensional array of encoded marks determined by spectral encoding variables may be formed on a marking surface, such as marking insert or a surface of a firearm and may be imprinted on a surface, such as a cartridge case, by physical impact.

Woo et al. '639 describes a method and apparatus for imprinting or coining "holograms" into the surface of metal articles and, in particular, aluminum baseball bats, by forming shims having a negative image of a hologram and pressing or impacting a shim mounted in a die into the surface of a baseball bat.

It must first be noted that the publication date of Woo et al. '639 is November 11, 2004 and the filing date is May 6, 2003. By comparison, the filing date of the present Application is July 18, 2003 and the present Application claims benefit of the May 1, 2003 and February 21, 2003 filing dates of its parent Applications, so that it is respectfully submitted that Woo et al. '639 is not a valid 35 U.S.C. § 102 or 35 U.S.C. § 103 reference with respect to the present Application.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw the rejections of claims 9 and 13-15 over Woo et al. '639 under either or both of 35 U.S.C. § 102 or 35 U.S.C. 103.

In any event, now considering Woo et al. '639, but solely for purposes of discussion, it will be noted that there are a number of fundamental distinctions between the teachings and suggestions of Woo et al. '639 and the present invention as recited in parent claim 1 and in claims 9 and 13-15. For example, it is apparent from Woo et al. '639 that Woo et al. '639

does not teach or suggest the actual encoding of information into a hologram of any form. Woo et al. '639 is instead using a type of hologram to generate areas of diffraction pattern on the surface of the imprinted object wherein the areas of diffraction pattern form an image, but wherein the area themselves do not contain any information. That is, Woo et al. '639 appears to be using areas of diffraction pattern to generate an image on a surface in essentially the same manner as would have been achieved by printing image on the surface in ink or paint, but with the areas of diffraction pattern substituting for areas of ink or paint.

The method and apparatus taught by Woo et al. '639 thereby does not and cannot encode information into a hologram, as in the present invention as recited in claims 1 and 16.

In addition, it should be noted that the method and apparatus described by Woo et al. '639, because they are essentially replacing paint and ink printing processes with the embossing of iridescent areas corresponding to areas of ink or paint, are apparently essentially limited to relatively large images, such as illustrated in Fig. 6 in the only descriptive example presented in Woo et al. '639. As such, the methods and apparatus of Woo et al. '639 would be unsuited to marking, for example, an information containing hologram on an interior marking surface of a firearm as recited in claims 13-15.

It is, therefore, the Applicant's belief and position that neither Daniel et al. '570 nor Woo et al. '639 teaches or even suggests the encoding of any form of barcode or other information as a hologram having the form of a multi-dimensional array of encoded marks determined by spectral encoding variables, as incorporated into claim 1 by claims 9 and 13-15, or of being used on a marking surface that is an interior surface of, for example, a firearm. It is, therefore, the Applicant's belief and position that the combination of Daniel et al. '570 in view of Woo et al. '639 does not and cannot teach or suggest the present invention as recited in claim 1, and as incorporated into claim 1 by claims 9 and 13-15 due to the claimed dependency, to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103 or 35 U.S.C. § 102.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all rejections of claims 9 and 13-15 over Daniel et al. '570 in view of Woo et al. '639 under 35 U.S.C. § 103, and allow claims 9 and 13-15 as presented herein above.

Next, the Examiner rejects claim 22 under 35 U.S.C. § 103(a) over Daniel et al. '570 in view of Kim '533. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the following remarks.

Claim 22 is dependent from claim 16 and, like new claims 47 and 48, recites that the holographic multi-dimensional array of spectrally encoded marks of claim 1, and the method for making such holograms of claim 16, further includes the conjoining of an artwork with the encoded marks representing the selected information so that the artwork is conjoined into the hologram together with the encoded marks representing the selected information to thereby form a single, unitary entity with the information encoded into the hologram.

First, considering Daniel et al. '570, as described claim 22 is dependent from claim 16 and thereby incorporates all of the recitations and limitations of claim 16, which is fully and patentably distinguished over and from the teachings of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 102 and § 103 for the reasons discussed herein above. It is, therefore, the belief and position of the Applicant that the present invention is patentably distinguished over and from the teachings and suggestions of Daniel et al. '570 under the requirements and provisions of 35 U.S.C. § 102 and § 103 for the same reasons that claim 16 is patentably distinguished over and from the teachings and suggestions of Daniel et al. '570.

Now considering the teachings of Kim '533, Kim '533 is similar to Daniel et al. '570 in describing a multi-layer assembly comprised of superimposed layers wherein a lower layer is a postage stamp and upper layer is extruded with the lower layer and includes a hologram. Essentially, therefore, the stamp layer in Kim '533 corresponds to the identifying information layer in Daniel et al. '570 while the hologram layer in Kim '533 corresponds to the hologram authentication layer in Daniel et al. '570.

Again, and as in the instance of Daniel et al. '570, there are fundamental differences between the present invention as recited in claim 16 and in dependent claim 22 and the teachings and suggestions of Kim '533. For example, the method and apparatus of the present invention as recited in claim 16 and thereby in claim 22 and in new claims 47 and 48 transforms or encodes the selected information directly into a hologram. That is, the hologram is itself comprised of the transformed selected information. In addition, the hologram that is comprised of the transformed selected information as represented by the spectrally encoded marks is a single, unitary entity that is complete in itself and that, for example, can be printed or embossed onto a surface as an entity and in a single operation.

As recited in claim 22, and in new claims 47 and 48, the artwork is conjoined with the encoded marks that represent the selected information and are transformed by the holographic

algorithm with the encoded marks to form the final hologram so that the resulting hologram is a single, integral entity containing both the selected information and the artwork. In this regard, it will be noted that claim 22 has been amended and claims 47 and 48 drafted to emphasize the integration of both the selected information and the artwork into the single, integrated entity that comprises the resulting hologram.

In complete contrast from the present invention as recited in claims 16 and 22, the multi-layer optical assembly proposed by Kim `533 does not comprise a single, unitary entity containing both the information and the artwork but is instead a multi-layer construct in which one layer contains the information, that is, the stamp, which is not a hologram, while a separate layer contains a hologram. That is, in Kim `533 the stamp and the artwork are not conjoined and transformed together to form a single, integrated entity containing both the stamp and the artwork, but instead remain as separate entities that are only mechanically joined.

Further with regard to the fundamental distinctions between the construction of the Kim `533 multi-layer assembly and the hologrammic entity of the present invention, it must be noted that according to claims 13-15 the resulting information containing hologram is to be used in a setting, such as on an impact surface of a firearm, where the hologram entity will be subject to high pressures and other potentially destructive forces and effects. It will be apparent to those of ordinary skill in the relevant arts that while an information containing hologram of the present invention, that is, created as a single, integrated entity, will resist such destructive forces much better than will a multi-layer construction, which would be completely unsuitable for such applications.

It is, therefore, the belief and position of the Applicant that Kim `533 does not teach or even suggest the invention as recited in claims 16 and 22 to those of ordinary skill in the arts under the requirements and provisions of either 35 U.S.C. § 102 or 35 U.S.C. § 103.

It is, therefore, the Applicant's belief and position that since neither Daniel et al. `570 nor Kim `533 teaches or even suggests the present invention as recited in claims 16 and 22, the combination of Daniel et al. `570 in view of Kim `533 does not and cannot teach or suggest the present invention as recited in claims 16 and 22 to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103 or 35 U.S.C. § 102.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all rejections of claim 22 over Daniel et al. `570 in view of Kim `533 under 35 U.S.C. § 103, and allow claim 22 as presented herein above.

Finally, the Examiner rejects claims 41, 42, 44 and 45 under 35 U.S.C. § 102(b) over Zemsky `346 and rejects claim 43 under 35 U.S.C. § 103(a) over Zemsky `346 in view of Altstadt `652. The Applicant acknowledges and respectfully traverses both of the raised rejections in view of the following remarks.

First considering the present invention as recited in independent claims 41 and 45, claims 41 and 45 are directed to firearm firing pin anti-tampering marking indicia for marking an identification indicia representing selected information on a portion of a cartridge case.

According to claim 45, the anti-tampering marking indicia includes a marking indicia disposed in a circular pattern on an end face of a firing pin tip wherein the circular pattern is centered about an axis of the firing pin and is physically encoded as a sequence of encoded bits recessed into a surface of an end face of the firing pin tip, the encoded bits being separated by encoded lands, such that removal of the marking indicia from the firing pin by removal of a portion of the striking section of the firing pin tip will render the firing pin incapable of impacting the cartridge case to fire the cartridge.

Claim 41, in turn, recites essentially the same invention, but in further detail. In particular, claim 41 states that the marking indicia is a radial bar code residing on the circumference of an end section of a striking member of a firing pin and that the radial bar code includes a plurality of grooves and lands extending from an end of the striking section impacting a portion of a cartridge case and along the striking member for a preselected encoding distance to mark the radial bar code represented by the grooves and lands into the portion of the cartridge case. As recited in claim 41, the encoding distance is selected such that removal of the radial bar code from the firing pin by removal of a portion of the striking section containing the radial bar code will render the firing pin incapable of impacting the cartridge case to fire the cartridge.

Claims 42, 43 and 44 are all directly or indirectly dependent from claim 41, and thereby incorporate all recitations and limitations of claim 41 by dependency, and recite further details of the organization of the bar code and of the location of the bar code at the end surface of the firing pin.

Therefore, considering the teachings of Zemsky `346, Zemsky `346 describes a method and apparatus for marking identifying information on a bullet fired from a firearm by means of a bar code comprised of raised and depressed areas superimposed on the lands and grooves of the rifling in the gun barrel.

Aldstadt `652 in turn describes a format for a bar code or barcodes that may be affixed to items to identify, for example, the sources and destinations of the items and that include a checksum.

It is, therefore, apparent that there are fundamental distinctions between the present invention as recited in claims 41 and 45, and thereby in claims 42, 43 and 44, and the teachings and suggestions of Zemsky `346.

For example, Zemsky `346 attempts to make identifying information on a bullet as it is fired out of the barrel of a gun while the present invention marks identifying information on the cartridge case, which is an entirely and fundamentally different operation and function requiring an entire different approach and apparatus.

In addition, and because of the distinction just discussed, the marking indicia of the present invention is located on the tip and forward sides of the firing pin while the marking elements of Zemsky `346 are located in the barrel of the firearm as a modification to the grooves and lands of the rifling.

These fundamental distinctions lead in turn to yet other fundamental distinctions. For example, an attempt to remove the marking indicia from a firing pin of the present invention will render the firing pin, and thus often the firearm, unusable, because removal of a length of the firing pin sufficient to eradicate the bar code from the tip of the firing pin will leave the firing pin too short to discharge a cartridge. In contrast, the identifying code in the Zemsky `346 system, being comprised of additional land and groove areas in the normal rifling of the gun barrel, can be removed or at least largely eradicated by passing a rifling cutter through the barrel, which would leave the firearm in operable condition.

It is, therefore, the belief and position of the Applicant that for the above reasons Zemsky `346 does not teach or suggest the present invention as recited in claims 41 or 45, and thereby in claims 42, 43 and 44, to one of ordinary skill in the relevant arts under the requirements and provisions of either 35 U.S.C. § 102 or 35 U.S.C. § 103.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all rejections of claims 41 and 45 and of claims 42, 43 and 44 over Zemsky `346 under 35 U.S.C. § 102 or 35 U.S.C. § 103, and allow claims 41, 45, 42, 43 and 44 as presented herein above.

As regards the rejection of claim 43 under 35 U.S.C. § 103(a) over Zemsky `346 in view of Aldstadt `652, claim 43 depends from claim 41 and thereby incorporates all recitations and

limitations of claim 41 as discussed herein above, so that it is the Applicant's position that claim 43 is patentably distinguished over and from the teachings of Zemsky '346 for the reasons discussed above with regard to claims 41 and 45.

As discussed above, Aldstadt '652 teaches a specific form of barcode that incorporates a checksum. The present invention, however, is not directed to a specific form of barcode, but to the arrangement of a tamper-proof barcode on a firing pin to mark cartridges, so that claim 43 does not stand alone but operates to add further limitations to the recitations of claim 41. Aldstadt '652, however, has no teachings relevant to the subject matter of claim 41, so that claim 43 is thereby patentably distinguished over and from the teachings and suggestions of Aldstadt '652 under the requirements and provisions of 35 U.S.C. § 102 and § 103 for the same reasons that claim 41 is patentably distinguished over Zemsky '346.

Therefore, and because neither Zemsky '346 nor Aldstadt '652 has any teachings or suggestions of the present invention as recited in claim 41 and thereby in claim 43, it is the Applicant's position that the combination of Zemsky '346 in view of Aldstadt '652 cannot and does not teach or suggest the present invention as recited in claim 43 to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103 or 35 U.S.C. § 102.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the rejections of claims 41, 42, 44 and 45 under 35 U.S.C. § 102(b) over Zemsky '346 and the rejection of claim 43 under 35 U.S.C. § 103(a) over Zemsky '346 in view of Aldstadt '652, and allow claims 41-45 as presented herein.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Daniel et al. '570, Zemsky '346, Komiya et al. '351, Caulfield '039, Lemelson et al. '980, Woo et al. '639, Kim '533 and/or Aldstadt '652 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying

10/622,236

on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

Michael J. Bujold, Reg. No. 32,018
Customer No. 020210
Davis & Bujold, P.L.L.C.
Fourth Floor
500 North Commercial Street
Manchester NH 03101-1151
Telephone 603-624-9220
Facsimile 603-624-9229
E-mail: patent@davisandbujold.com